

# Work Order ID 89864

**\*89864\***

Page 1

September-12-12 7:53:12 AM

Item ID: DSK134-7 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Swaging test sample -Swaged w/o I-beam  
 Start Date: 9/12/12 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 9/21/12 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: W Date: Tooling: Date: Run Start **\*NR1\***  
 QC: W Date: SPC (Y/N): Date: Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								

110

0.00

**\*110\***

Skidtubes

Skidtubes

Memo

0.00

1- PICK D2600-1 EXTRUSION AND CUT AS PER DWG

2- DRILL HOLES IN D2600-1 AS PER DWG

4- SWAGE AS PER DWG

5- TRIM/GRIND FLUSH AS PER DWG

DP 12-9-10

120

QC5- Inspect part completeness to step on W/O

0.00

**\*120\***

QC

Quality Control

Memo

0.00

Lengths are  $3.00 \pm 0.03$   
 Swage I.D. is  $\phi 0.313^{+0.006}_{-0.000}$   
 Swage depth is 0.720 min (Dwg is  $0.75 \pm 0.03$ ), transition between  
 full swage and nominal Xbolt I.D. is longer (1" approx.)

Acceptable P 12/10/13

**Work Order ID 89864****\*89864\***

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September-12-12 7:53:12 AM

Item ID: DSK134-7      Accept      \*N900040100\*      Setup Start \*NS1\*  
Revision ID:      Stop \*NS2\*  
Item Name: Swaging test sample -Swaged w/o I-beam  
Start Date: 9/12/12      Start Qty: 1.00      \*1\*      Cust Item ID:  
Required Date: 9/21/12      Req'd Qty: 1.00      \*1\*      Customer:  
Reference:

Approvals:      Process Plan:      Date:      Tooling:      Date:      Run Start \*NR1\*  
QC:      Date:      SPC (Y/N):      Date:      Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160		0.00							
*160*									
Eng	Memo	0.00							
Engineering	PERFORM ENGINEERING TEST								
170	QC5- Inspect part completeness to step on W/O	0.00							
*170*									
QC	Memo	0.00							
Quality Control									
180	Identify as per dwg & Stock Location: _____	0.00							
*180*									
Packaging	Memo	0.00							
Packaging									

N/A TEST ONLY  
CP 12/10/13

**Work Order ID 89864****\*89864\***

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September-12-12 7:53:12 AM

Item ID: DSK134-7 Accept **\*N900040100\*** Setup Start **\*NS1\***  
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Item Name: Swaging test sample -Swaged w/o I-beam  
Start Date: 9/12/12 Start Qty: 1.00 **\*1\*** Cust Item ID:  
Required Date: 9/21/12 Req'd Qty: 1.00 **\*1\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC21- Final Inspection - Work Order Release	0.00							
<b>*190*</b>									
QC	Memo	0.00							
Quality Control									

MF  
137-8

# Picklist Print

September-12-12 7:53:11 AM

Page 1

Work Order ID: 89864

Parent Item: DSK134-7

Parent Item Name: Swaging test sample -Swaged w/o I-beam

Start Date: 9/12/12

Required Date: 9/21/12

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 12.09.11 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2600-1-190 Extrusion Round 3" 206		Manufactured	No				Each	0.0000					
D2649 Cross Bolt Spacer		Manufactured	No				Each	262.0000					

\*\*\*HT TO T4\*\*\*

Location

Loc Qty

Loc Code

LG

262

85586

4

86912

3

87645

89

88529

166

82813

DP 12-9-10  
1

DP 12-9-10

(5)

D2649  
SPACER,  
HT TO T4  
CONDITION

D2600-1  
EXTRUSION

DRILL D2600-1: Ø0.375

- PERFORM THE FOLLOWING  
FOR Ø0.375 HOLE:
1. INSERT D2649 SPACER
  2. SWAGE TO Ø0.313 X 0.75 DP  
PER QSI 002
  3. TRIM/GRIND FLUSH PER QSI 002

SECTION D-D

DSK134-7 TEST SAMPLE (SWAGED W/O I-BEAM)

*W/089864*

**PROTOTYPE**  
PLEASE RETURN ALL ISSUED  
DATA TO ENGINEERING  
*QP 12/9/11*

DESIGN	<i>QP</i>	<b>DART AEROSPACE LTD</b>	
DRAWN	<i>QP</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
<b>FAULT CATEGORY</b>											
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other		



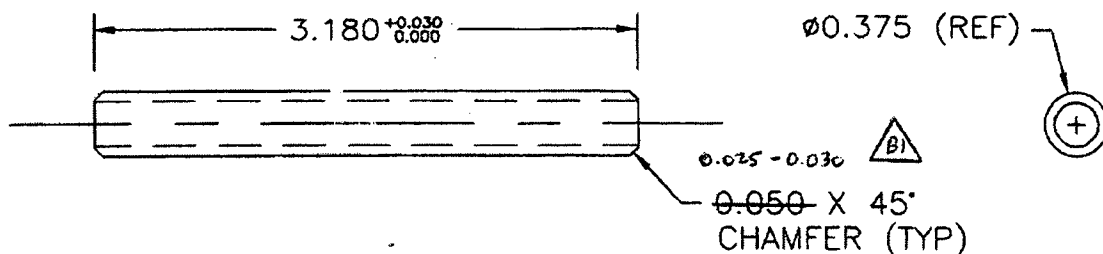
DESIGN <i>[Signature]</i>	DRAWN BY <i>KE</i>	DART AEROSPACE USA, INC. FAIRCHILD INTERNATIONAL AIRPORT, WA	
CHECKED <i>[Signature]</i>	APPROVED <i>BW</i>	DRAWING NO. D2649	REV. B SHEET 1 OF 1
DATE 98.01.14		TITLE CROSS BOLT SPACER	SCALE 1:1
A	97.03.25	NEW ISSUE	
B	98.01.14	3.180 WAS 3.230, ADD CHAMFER	
B1	<del>CP</del> 02.06.13	REDUCE CHAMFER PER TSR 1296.	

RELEASED  
98.01.20 DS

SHOW  
REVISIONS  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO 79566 M.6 J

12/01/27



MATERIAL: 6061-T6 (WW-T-700/6) OR 5052-H32 (WW-T-700/4)  
0.375 DIA 0.058 WALL  
TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

# Receiving Report

Date: 12/2/9

Batch No: n/20633

Supplier: MARMA

Dart P/O: 16093

Packing Slip: Yes ☒ No ☐  
 Invoice: Yes ☐ No ☒  
 Receipt: Cash ☐ Cr ☒

Release Note Attached: Yes ☐ No ☒ N/A ☐  
 Waybill Attached: Yes ☐ No ☒  
 Shipment Complete: Yes ☒ No ☐ N/A ☐  
 QC6 Inspection OK 12/2/09 N/A ☐  
 Work Order ☐ N/A ☒

## Discrepancies

Part Number	Description	Quantity Ordered	Quantity Received	Quantity Returned	Quantity Short	Comments

Initials of receiver (if shipment OK) Level 12 [Signature]

Production/Admin: \_\_\_\_\_  
 Date \_\_\_\_\_  
 Received/Costing \_\_\_\_\_  
 Initial [Signature] \_\_\_\_\_

Location \_\_\_\_\_



# Purchase Order Receipt Listing

Page 1 of 2

February 10, 2012 8:05:47 AM

All amounts are calculated in domestic currency.

All Vendors PO ID PO16093 All Receipt Dates All Line Item Types  
All Item ID/GL/WOs All Rec. Employees All Currencies  
Grouped by Vendor ID

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
VendorID\Vendor Name VC-MAR001 Marmon/Keystone Canada Ltd.											
PO16093	1		M304TR0.500W.035 f		2/08/12	2/09/12	300.0000	\$0.95	0.0000	0	\$284.20
CAD	No		304 RD Tube .500 x .035W I20633	f	300.0000	DESJ02		\$284.20	0.0000	0	
	2		M304TR0.500W.049 f		2/08/12	2/09/12	200.0000	\$1.25	0.0000	0	\$249.30
	No		304 RD Tube .500 x .049W I20633	f	200.0000	DESJ02		\$249.30	0.0000	0	
	3		M304TR0.675W.091 f		2/08/12	2/09/12	100.0000	\$1.40	0.0000	0	\$139.61
	No		304 RD Tube .675 x .091W I20633	f	100.0000	DESJ02		\$139.61	0.0000	0	
	4		M304TS0.750W.065 f		2/08/12	2/09/12	500.0000	\$2.29	0.0000	0	\$1,146.78
	No		304 SQ Tube .75x.75x.065W I20633	f	500.0000	DESJ02		\$1,146.78	0.0000	0	
	5		M6061T6T0.375W.058 f		2/08/12	2/09/12	312.0000	\$2.14	0.0000	0	\$668.92
	No		6061-T6 RD Tube .375 x.058W I20633	f	312.0000	DESJ02		\$668.92	0.0000	0	
	6		M6061T6T0.500W.058 f		2/08/12	2/09/12	108.0000	\$2.11	0.0000	0	\$228.32
	No		6061-T6 RD Tube .500 x.058W I20633	f	108.0000	DESJ02		\$228.32	0.0000	0	
	7		M6061T6T0.625W.065 f		2/08/12	2/09/12	108.0000	\$2.94	0.0000	0	\$317.71
	No		6061-T6 RD Tube .625 x.065W I20633	f	108.0000	DESJ02		\$317.71	0.0000	0	

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
------------------------------------	-----------------------------	------------	--	-----------------------	-------------------------------	---------------------------	-------------------------	------------------------------	--	-------------------------------	----------

Total Received Quantity:	1,628.0000
Total Qty to Inspect (PO U/M):	0.0000
Total Reject Quantity:	0.0000
Total Receipt Value:	\$3,034.85
Total Balance Due Quantity:	0.0000



**Marmon/Keystone Canada Inc.**  
ACIERS SPÉCIALISÉS

290 Chemin du Tremblay  
Boucherville QU CAN J4B 5X9  
TEL. 514/527-9153  
FAX. 450/641-4357

**PACKING SLIP**

PAGE... 1  
Order : 1112389  
Date... 02/07/2012

**SOLD TO:**

DART AEROSPACE LTD  
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

**SHIPPED TO:**

DART AEROSPACE LTD  
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

SHIP VIA		F.O.B.	SALESPERSON	YOUR	ORDER NO.
TST OVERLAND #222212		BOUCHERVILLE	G. Dulude	16098	
Ordered	Description	Number Pieces	Quantity Shipped	Back Ordered	
01	Fax all papers to Linda Lacelle 613-632-1053 rev: 01/11 GD STAINLESS-STEEL SEAMLESS TUBE SMLS TUBE 304L 1/2" X .035" A213 STS .500 .035 304L Tariff Number: 7304 Cust. part#: M304TRO.500W.035 HT#.....: YX1004-364 Total... 15 300/FT	15	300/FT		
02	STAINLESS-STEEL SEAMLESS TUBE SMLS TUBE 304L 1/2" X .049" A213 STS .500 .049 304L Tariff Number: 73 Cust. part#: M304TRO.500W.049 HT#.....: YT3349 Total... 10 200/FT	10	200/FT		
03	STAINLESS WELDED PIPE SA-312 304L WLD PIPE 3/8" SCH40 SA312 SPW .375 .091 40S 304L Tariff Number: 7306.40.90.10 Cust. part#: M304TRO.675W.091 HT#.....: ATJ050119 HT#.....: ATS050426 HT#.....: 258189 Total... 5 100/FT	5	100/FT		
04	STAINLESS STEEL TUBE A554 304 ORN. TUBE 3/4" X 3/4" X .065" A554 STS .750 .065 304APC Tariff Number: 7306.40.90.10 Cust. part#: M304TSO.750W.065 HT#.....: 9HP2 Total... 25 500/FT	25	500/FT		
05	Surcharge de \$318.00 incluse dans le prix ALUMINUM SMLS TUBE ATS .375 .058 D6061 Tariff Number: 7608.20.00.90 Cust. part#: M6061TSO.375W.058 HT#.....: F00013715 Total... 26 312/FT	26	312/FT		
06	ALUMINUM SMLS TUBE ATS .375 .058 D6061 Tariff Number: 7608.20.00.90				

Continued on next page..



A Marmon Distribution Services/Berkshire Hathaway Company



**Marmon/Keystone Canada Inc.**  
ACIERS SPÉCIALISÉS

290 Chemin du Tremblay  
Boucherville QU CAN J4B 5X9  
TEL. 514/527-9153  
FAX. 450/641-4357

**PACKING SLIP**

PAGE... 2  
Order : 1112389  
Date... 02/07/2012

**SOLD TO:**

DART AEROSPACE LTD  
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

**SHIPPED TO:**

DART AEROSPACE LTD  
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

**SHIP VIA**

TST OVERLAND #222212

**F.O.B.**

BOUCHERVILLE

**SALESPERSON**

G. Dulude

**YOUR ORDER NO.**

16093

Ordered	Description	Number Pieces	Quantity Shipped	Back Ordered
07	<p>Fax all papers to Linda Lacelle 613-632-1053 Cust. part#: M6061T6T0.500W.058 HT#.....: F00011753 HT#.....: F00013711 Total... rev:01/11 GD</p> <p>ALUMINUM SMLS TUBE D6061 Tariff Number: 7608.20.00.90 Cust. part#: M6061T6T0.625W.065 HT#.....: F00010188 HT#.....: F00012516 Total...</p>	<p>6 3 9</p> <p>2 7 9</p>	<p>72/FT 36/FT 108/FT</p> <p>24/FT 84/FT 108/FT</p>	

No. of Bdl's/Pieces

1 / 0

Total Weight.....:

505

Customers..



A Marmon Distribution Services/Berkshire Hathaway Company

# KAISER ALUMINUM FABRICATED PRODUCTS

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
5205 KAISER DRIVE  
KALAMAZOO, MI 49048

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER: 61-17107-1		CUSTOMER PART NUMBER: AT/375.058/734		PRODUCT DESCRIPTION: Seamless Tube/Pipe	
KAISER ORDER NUMBER: 606551	LINE ITEM: 001	SHIP DATE: 01/04/2012	KAISER LOT NUMBER: F00013715	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 629.000 LB	QUANTITY: 776.000 PCS	B/L NUMBER: 602261	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO:  MARMON/KEYSTONE CORP 32944 US HIGHWAY 6 SPRING VALLEY, IL 61362 USA			SOLD TO:  MARMON/KEYSTONE CORP 10700 MARMON DR BOLINGBROOK, IL 60440 USA		

### Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	TS (KSI)	YS (KSI)	ELONG%	HARDNESS	CONDUCT.	BEND
* F00013715	0001	1	46.3	42.9	12.0	N/A	N/A	N/A
* F00013715	0002	1	46.2	42.9	12.3	N/A	N/A	N/A
* F00013715	0003	1	45.8	43.0	15.0	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D69881	.58	.26	.22	.06	.98	.07	.09	.02	.00	.00	.00	.01	.02
D69877	.57	.31	.25	.05	.96	.07	.06	.02	.00	.00	.00	.01	.02

### Applicable Requirements:

Description: MADE IN USA

OD: 0.375", Wall: 0.058", Round @

AMS-4082P ASTM-B210-04 WW-T-700/6F

WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS-4082P, WAS NOT OILED.

THE FOLLOWING SPECIFICATIONS HAVE BEEN MADE INACTIVE OR

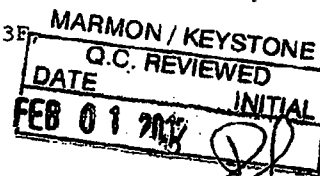
CANCELLED: MIL-T-7081, WW-T-700F/GEN, WW-T-700/2E, WW-T-700/3F,

WW-T-700/4F, WW-T-700/5E, WW-T-700/6F, and WW-T-700/7B.

COMPLIES TO DIN EN 10204 JAN 2005

COMPLIES TO DFAR 252.225-7001 and DFAR 252.225-7014

No Weld Repair. Mercury Free.



### Miscellaneous Notes

MANUFACTURED IN USA (CHANDLER, AZ) MELTED IN USA

Plant Serial: 00022757

Kaiser Order Number: 606551

Line Item: 001

# **KAISER**

## **ALUMINUM**

### **FABRICATED PRODUCTS**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
5205 KAISER DRIVE  
KALAMAZOO, MI 49048

## **CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

### **CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Alex Yeh, Quality & Technology Manager

*Yeh*

**Q. C. REVIEWED**



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO16093**

Purchase Order Date 2/06/12

PO Print Date 2/06/12

Page Number 1 of 3

Order From : VC-MAR001

MARMON/KEYSTONE CANADA LTD.  
290 CHEMIN DU TREMBLAY  
BOUCHERVILLE, QC J4B 5X9  
CA

Contact Name

Vendor Phone 800 361 8142

Vendor Fax 450 641 4357

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

10127-2607

Tax Resale Nbr

Net 30

Terms

Currency

CAD

FOB

Destination-Collect

Ship To : DART AEROSPACE LTD  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	M304TR0.500W.035 017	304 RD Tube .500 x .035W	2/08/12 Yes	300.00 f	TST ground	\$0.9500	\$285.00
Special Inst: MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269							
2	M304TR0.500W.049 n	304 RD Tube .500 x .049W	2/08/12 Yes	200.00 f	TST ground	\$1.2500	\$250.00
Special Inst: MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269							
3	M304TR0.675W.091 n	304 RD Tube .675 x .091W	2/08/12 Yes	100.00 f	TST ground	\$1.4000	\$140.00

Change Nbr: 1

Change Date: 2/06/12

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required when applicable



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO16093**

Purchase Order Date 2/06/12

PO Print Date 2/06/12

Page Number 2 of 3

Order From :

VC-MAR001

MARMON/KEYSTONE CANADA LTD.  
290 CHEMIN DU TREMBLAY  
BOUCHERVILLE, QC J4B 5X9  
CA

Contact Name

Vendor Phone 800 361 8142

Vendor Fax 450 641 4357

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

10127-2607

Tax Resale Nbr

Net 30

Terms

CAD

Currency

FOB

Destination-Collect

Special Inst:

MATERIAL: AISI 304/316 SS SEAMLESS  
ROUND TUBING  
AS PER ASTM A213 OR ASME SA213 OR  
ASTM A269

MATERIAL: T304/T316 3/8 SCHEDULE  
40

(REF. DART SPEC'S M304TR0.675W.091)

QTY	Part Number	Description	Unit	Price	Amount	Total
4	M304TS0.750W.065	304 SQ Tube .75x.75x.065W	2/08/12	500.00	TST ground	\$2.3000
			Yes	f		\$1,150.00

Special Inst:

MATERIAL: AISI 304/316 SEAMLESS  
STAINLESS  
STEEL SQUARE TUBING AS PER ASTM  
A554 MILL FINISH  
OR ASTM A260 MILL FINISH

QTY	Part Number	Description	Unit	Price	Amount	Total
5	M6061T6T0.375W.058	6061-T6 RD Tube 3/5 x.058W	2/08/12	312.00	TST ground	\$2.1500
			Yes	f		\$670.80

Special Inst:

MATERIAL: 6061-T6 OR 6061-T62  
TUBING PER  
WW-T-700/6 OR AMS 4080 OR AMS 4082  
OR  
QQ-A-200/8 OR QQ-A-225/8

QTY	Part Number	Description	Unit	Price	Amount	Total
6	M6061T6T0.500W.058	6061-T6 RD Tube .500 x.058W	2/08/12	108.00	TST ground	\$2.1200
			Yes	f		\$228.96

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required when applicable

Change Nbr: 1

Change Date: 2/06/12





Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO16093**

Purchase Order Date 2/06/12

PO Print Date 2/06/12

Page Number 3 of 3

**Order From :**

VC-MAR001

MARMON/KEYSTONE CANADA LTD.  
290 CHEMIN DU TREMBLAY  
BOUCHERVILLE, QC J4B 5X9  
CA

**Contact Name**

**Vendor Phone** 800 361 8142

**Vendor Fax** 450 641 4357

**Vendor Account Nbr**

**Buyer**

Chantal Lavoie

**Requisition Nbr**

**Tax Resale Nbr**

10127-2607

**Terms**

Net 30

**Currency**

CAD

**FOB**

Destination-Collect

**Special Inst:**

MATERIAL: 6061-T6 OR 6061-T62  
TUBING PER  
WW-T-700/6 OR AMS 4080 OR AMS 4082  
OR  
QQ-A-200/8 OR QQ-A-225/8

7

M6061T6T0.625W.065

6061-T6 RD Tube .625  
x.065W

2/08/12

108.00 TST ground

\$2.9500

\$318.60

Yes

f

**Special Inst:**

MATERIAL: 6061-T6 OR 6061-T62  
TUBING PER  
WW-T-700/6 OR AMS 4080 OR AMS 4082  
OR  
QQ-A-200/8 OR QQ-A-225/8

**PO Total:**

**\$3,043.36**

**MATERIAL CERTIFICATION  
REQ'D UPON DELIVERY**

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required when applicable

**Change Nbr:** 1

**Change Date:** 2/06/12



Metcor Inc.  
560, boul. Arthur-Sauvé  
St-Eustache (Québec) J7R 5A8  
Tél. 450-473-1884  
Télécopieur / Fax administration 450-473-1849  
Télécopieur / Fax production 450-473-5453

**Certificat de conformité**  
**Certificate of compliance**

BON DE TRAVAIL order	CHARGEMENT load
175178	1

CLIENT / customer 218  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESSBURY

ON K8A 1K7

LIVRÉ À / shipped to:  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESSBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot/number
PO16674		AL-6081		

**SPÉCIFICATIONS DU PROCÉDÉ**  
processing specifications

BOL ANNEAL  
COND.W

XIGENCE / requirement SPÉCIFICATIONS / specifications TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results  
Visual

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
40	0.74	D2648 CROSS BOLT SPACER  CONTENANT: 1 BOÎTE DE CARTON

**COMMENTAIRES / comments**

INSPECTEUR / inspector:



DATE: 2012-04-17

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC J7R 5A8  
Tel: 450-473-1884 / Fax: 450-491-5498

Recu de Livraison

Order	Shipper	Shipping Seq.
175178	1	60227

Shipped Complete

**Customer** **215**  
**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

**Shipped To:**  
**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO16674		AL-6061	2012/4/12	PURO
Quantity	Part No. / Part Name / Part Description			Pounds
40	D2649 CROSS BOLT SPACER			74

CONTENANT: 1 BOÎTE DE CARTON

Container Type	# Of Containers	Container Comments
BOITE DE CARTON	1	

<b>PACKING</b>	
----------------	--

Quantity Shipped: 40  
Pounds Shipped: 0,74  
Quantity Remaining: 0  
Pounds Remaining: 0,00

Quantity Shipped: 40

Pounds Shipped: 0,74

Signature:

Date:

Shipped ON: 2012/04/18

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

**Certificat de Conformité Détaillé**  
Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
175178	1

CLIENT / customer 215

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO16674		AL-6061		

## SPÉCIFICATIONS DU PROCÉDÉ processing specifications

SOL ANNEAL  
COND.W  
CONDITION T4

EXIGENCE / requirement SPÉCIFICATI / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results  
Visual

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
40	0.74	D2649 CROSS BOLT SPACER  CONTENANT: 1 BOÎTE DE CARTON

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.	LAVAGE		si nécessaire							
2.00 Degrease										
3.00 PREPARING	COMPTAGE									
4.00 PREHEAT 1	529°C	0:30	air			701				
5.00 WATER TEM										
6.00 SOL ANNEAL	529°C	0:40	AIR		WATER 32MAX	701				
7.00 QUENCHIDE										

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

## Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
175178	1

CLIENT / customer 215

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

Operation	Temp. spécifiée Specified Temp	Temps de trempage Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Média Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
8.00 QUENCH TI										
9.00 WATER TEM										
10.00 CRYOGENIK	-29		AZOTE							
11.00 Pack	-68		CO2							
12.00 FINAL INSP							04-17-2012			04-17-2012

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2012-04-23

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client. / We certify that all the information on this report is exact and in accordance with the order requirements.

**Linda Lacelle**

---

**From:** Isam El-Kassis <ielkassis@dartaero.com>  
**Sent:** September-06-12 3:54 PM  
**To:** 'Linda Lacelle'  
**Subject:** FW: 206 swaging test requirements.

Hi Linda,

Please see below for swaging tubes, please pass it along to Dan.  
We should move on this project ASAP,  
We'll be having a large order in front of us, therefore we need to prove the swaging operation.

Thank you,

Isam

---

**From:** Chris Provencal [<mailto:cprovencal@dartaero.com>]  
**Sent:** Thursday, September 06, 2012 3:48 PM  
**To:** David Duval; Mike Petsche; Isam el Kassis  
**Subject:** RE: 206 swaging test requirements.

The actual swaging should be per the c'bore instruction on D2650, which is 0.313 DIA x 0.75 DP

---

**From:** Chris Provencal [<mailto:cprovencal@dartaero.com>]  
**Sent:** Thursday, September 06, 2012 3:42 PM  
**To:** David Duval; Mike Petsche; Isam el Kassis  
**Subject:** 206 swaging test requirements.

David,

Swaging test pieces needed:

- 5 welded x-bolt spacers with I-beam
- 5 welded x-bolt spacers with no I-beam
- 5 swaged x-bolt spacers with I-beam
- 5 swaged x-bolt spacers with no I-beam

3" long skid tube sections each.

Recommend that the x-bolt spacers themselves be cut 3.245" long (if not already cut)

Need to let the swaged skid sections sit for at least a week to see if they develop any cracks before we load test them

-Chris

RD3425



**Material Requisitions**

R/S#: \_\_\_\_\_

Part Number: M 606/T 6 A 1.000 w. 125 Batch #: M 122081 Quantity: 6"Received/taken by: Dereck Date: 12/09/10**USED FOR:** (must be completed)

Engineering Project # P \_\_\_\_\_

OR

Shop Tooling (non-work order) \_\_\_\_\_

Continues progress skid tube table's

H:\forms\purchase\approved purch\MATREQ revB

**Material Requisitions**

R/S#: \_\_\_\_\_

Part Number: D2600-1-190 Batch #: 69622 Quantity: 1Received/taken by: DAN Date: 12/09/10**USED FOR:** (must be completed)

Engineering Project # P \_\_\_\_\_

OR

Shop Tooling (non-work order) \_\_\_\_\_

RD 3425

H:\forms\purchase\approved purch\MATREQ revB

**Material Requisitions**

R/S#: \_\_\_\_\_

Part Number: D2649 Batch #: 388529 Quantity: 10Received/taken by: BARCLAY Date: 12-09-19**USED FOR:** (must be completed)

Engineering Project # P \_\_\_\_\_

OR

Shop Tooling (non-work order) RD 3425



## David Duval

**From:** Chris Provencal <cprovencal@dartaero.com>  
**Sent:** Thursday, September 06, 2012 3:48 PM  
**To:** David Duval; Mike Petsche; Isam el Kassis  
**Subject:** RE: 206 swaging test requirements.

The actual swaging should be per the c' bore instruction on D2650, which is 0.313 DIA x 0.75 DP

---

**From:** Chris Provencal [<mailto:cprovencal@dartaero.com>]  
**Sent:** Thursday, September 06, 2012 3:42 PM  
**To:** David Duval; Mike Petsche; Isam el Kassis  
**Subject:** 206 swaging test requirements.

David,

Swaging test pieces needed:

5 welded x-bolt spacers with I-beam

5 welded x-bolt spacers with no I-beam

5 swaged x-bolt spacers with I-beam

5 swaged x-bolt spacers with no I-beam

3" long skid tube sections each

Recommend that the x-bolt spacers themselves be cut 3.245" long (if not already cut)

Need to let the swaged skid sections sit for at least a week to see if they develop any cracks before we load test them

-Chris

$$3.75 - .058 - .058 = 2.59$$

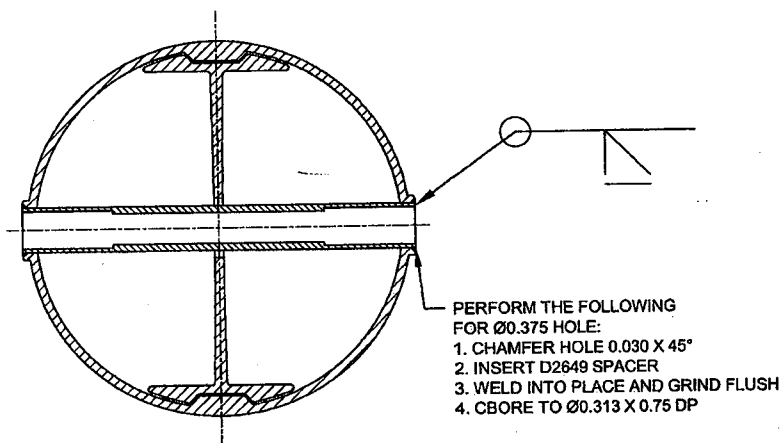
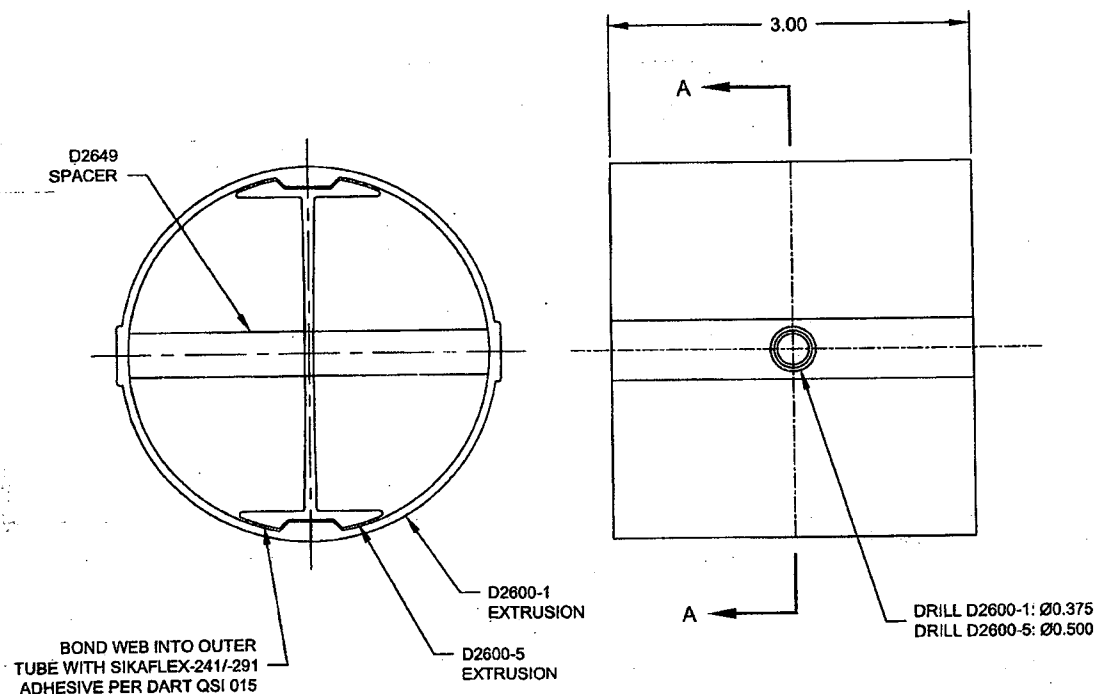
$$2.59 \div 3.13 = 0.83$$

$$100 - 83 = 17\%$$

~~17%~~

Need to expand 17% not good for TG.  
Not more than 12.9%

REFERENCE ONLY



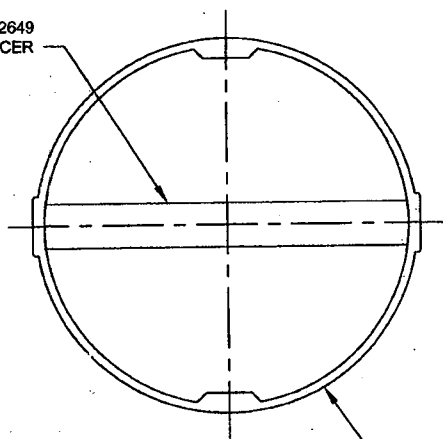
SECTION A-A

DSK134-1 TEST SAMPLE (WELDED W/ I-BEAM)

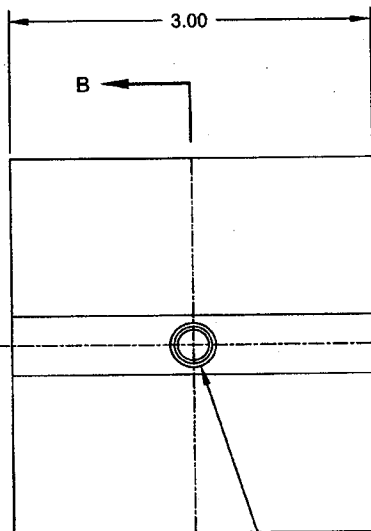
**PROTOTYPE**  
 PLEASE RETURN ALL ISSUED  
 DATA TO ENGINEERING  
 4-12/9/11

DESIGN	90	<b>DART AEROSPACE LTD</b>	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD                  THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS                  NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT                  WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

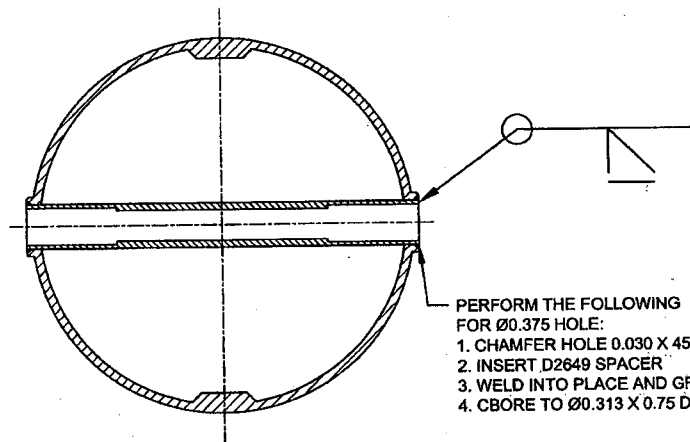
D2649  
SPACER



D2600-1  
EXTRUSION



DRILL D2600-1: Ø0.375



- PERFORM THE FOLLOWING  
FOR Ø0.375 HOLE:
1. CHAMFER HOLE 0.030 X 45°
  2. INSERT D2649 SPACER
  3. WELD INTO PLACE AND GRIND FLUSH
  4. CBORE TO Ø0.313 X 0.75 DP

**SECTION B-B**

**DSK134-3 TEST SAMPLE (WELDED W/O I-BEAM)**

**PROTOTYPE**  
PLEASE RETURN ALL ISSUED  
DATA TO ENGINEERING  
4/12/9/11

DESIGN	92	<b>DART AEROSPACE LTD</b>	
DRAWN	92	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

D2649  
SPACER,  
HT TO T4  
CONDITION

BOND WEB INTO OUTER  
TUBE WITH SIKAFLEX-241/291  
ADHESIVE PER DART QSI 015

D2600-1  
EXTRUSION  
  
D2600-5  
EXTRUSION

DRILL D2600-1: Ø0.375  
DRILL D2600-5: Ø0.500

PERFORM THE FOLLOWING  
FOR Ø0.375 HOLE:  
1. INSERT D2649 SPACER  
2. SWAGE TO Ø0.313 X 0.75 DP  
PER QSI 002  
3. TRIM/GRIND FLUSH PER QSI 002

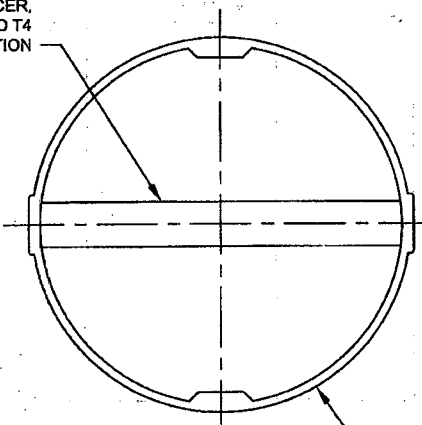
# SECTION C-C

DSK134-5 TEST SAMPLE (SWAGED W/ I-BEAM)

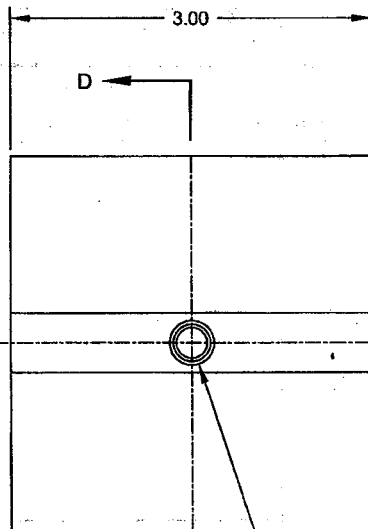
**PROTOTYPE**  
PLEASE RETURN ALL ISSUED  
DATA TO ENGINEERING  
4/ 12/9/11

DESIGN	42	<b>DART AEROSPACE LTD</b>	
DRAWN	42	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 9 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMES OR IS CONSIDERED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

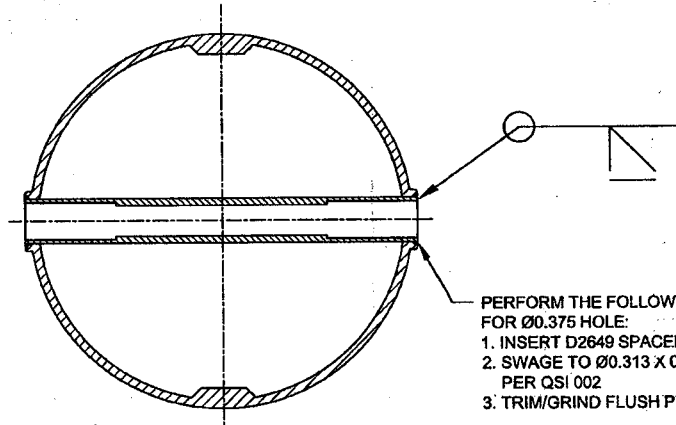
D2649  
SPACER,  
HT TO T4  
CONDITION



D2600-1  
EXTRUSION



DRILL D2600-1: Ø0.375



- PERFORM THE FOLLOWING  
FOR Ø0.375 HOLE:
1. INSERT D2649 SPACER
  2. SWAGE TO Ø0.313 X 0.75 DP  
PER QSI 002
  3. TRIM/GRIND FLUSH PER QSI 002

**SECTION D-D**

**DSK134-7 TEST SAMPLE (SWAGED W/O I-BEAM)**

**PROTOTYPE**  
PLEASE RETURN ALL ISSUED  
DATA TO ENGINEERING

12/9/11

DESIGN	DP	<b>DART AEROSPACE LTD</b>	
DRAWN	DP	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO. DSK 134	REV. A
MFG. APPR.			SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
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